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For the American Medical Intelligencer.

## ART. I.—CASE OF EXTREME SENSIBILITY OF THE RETINA.

BY JAMES W. SALTER, M. D.

Richmond, Va., Nov. 16th, 1839.

*Professor Dunglison.*

Dear sir,—I herein take the liberty of sending you a report of a case of extreme morbid sensibility of the retina, possessing, I think, some interest. If you should deem it worthy of a place in the "Medical Intelligencer," please give it an insertion. As the case proved a "stumbling-block" to some who had been long in practice, perhaps its publicity may be of use to others.

Very respectfully, your obed't. servant,

JAMES W. SALTER, M. D.

The subject of the following case was a daughter of Mr. M. K., residing in this vicinity, æt. 3. She was attacked about eight months ago with violent inflammation of both of the eyes, which was partially subdued by an antiphlogistic course of treatment. Several states of relapse and partial alleviation occurred during the first three or four months. The eyes then became permanently so irritable as not to admit a particle of light, which state continued until the case was despaired of, and finally given up by a respectable practitioner as incurable. On the 1st of October, and about six months after the first attack, I was requested to see her. I found the little patient lying upon her face, which position she obstinately maintained both day and night, with the eyelids much swollen and some abrasions about the nose and forehead, produced by the constant pressure and friction; pulse quicker and more frequent than natural; tongue slightly coated; bowels regular; appetite tolerable; and the mind excessively irascible, not bearing the least attention. All my attempts to examine the state and appearance of the balls of the eyes were rendered perfectly fruitless, partly by the swollen state of the lids and partly by the excessive suffusion of tears whenever the attempt was made. My pathological deductions were, that this was no longer an inflammatory disease, but purely a morbid sensibility of the retina superinduced by the previous inflammatory action, and kept up by the entire exclusion of light. I prescribed sulph. quinae, elix. vit. and tr. opii comp. in combination as freely as the stomach would bear, and ordered a more generous and nutritive diet. In less than three weeks' time I had the satisfaction of seeing the use of my little patient's eyes entirely restored—the only vestige of disease being a small opaque spot upon the cornea of the left eye, which is gradually being absorbed.

JAMES W. SALTER.

For the American Medical Intelligencer.

## ART. II.—CASES OF THORACIC DISEASE.

BY JAMES M. GREEN, M. D.

Macon, Ga., Nov. 6th, 1839.

*Dr. Dunglison.*

Dear sir,—I send you abstracts of my notes of two interesting cases of thoracic disease, which you are at liberty to publish—all, or as much as you may think proper.

Yours respectfully,

JAMES M. GREEN.

Case of T. L. S., in his fortieth year. A man of sanguine temperament and active habits, formerly of athletic frame, has been much exposed in various climates for twenty years. Has suffered from bronchial affections coughs, colds, difficulty of breathing, &c., for sixteen years, increasing in violence and frequency, and lately accompanied by disordered action of the heart.

*Present state*, Nov. 5, 1838.—Great fatigue and violent palpitation on ascending a flight of steps; distressing cough, and plentiful muco-purulent expectoration every morning on awakening; stomach disordered in its functions; anorexia; bad digestion, &c. Liver and spleen both enlarged and sore to the touch. Heart apparently dilated, and laborious in its action, impulse feeble, but distinct in both hypochondria and in the epigastrium. Sound on percussion on left side very clear from spine behind to sternum in front. On the right side in front relatively flat above and more so about the mammary region; same characters in lateral regions, but not so distinct; flatter on the right side behind than on the left. Stethoscopic examination:—sound of the heart, loud all over the lower and front part of thorax, in the right and left hypochondria and epigastrium. No respiratory sound on the right side, with the exception of an obscure vesicular respiratory murmur below the clavicle, and at the internal edge of the right scapula. Left side, in front or in the lateral regions the respiration somewhat puerile, with an occasional sonorous rattle; posteriorly there is a loud tracheal blowing sound, about as wide as two fingers, and extending from the middle of the scapula in a straight line to eighth rib, where it disappears; it is attended with loud resonance of the voice, and is distinctly defined at its margins. For several months he made a persevering use of various means of counter-irritation, including a seton on the upper part of the sternum, together with a long-continued purging with aloes, myrrh, and sulph. ferr. pills, and other modes of local and general treatment. Under the use of these remedies, and a more prudent indulgence and exposure, his face assumed its natural hue—the liver and spleen their natural size and functions, and his abdomen, from being full and prominent became flat and even depressed; appetite and digestion quite healthy.

The stethoscopic changes, noticed during many successive observations, were a gradual increase in the roughness and puerility of the respiration, until it became intensely puerile; this change seemed to take place behind, and advanced to the front of the chest, until it included the whole of the left lung; and there seemed to be a marked diminution in the apparent volume of the heart—it seemed to contract itself behind the sternum.

Aug. 16, 1839. *Present state*.—Abdomen flat; liver, spleen and stomach natural. A slight sound of inspiration and expiration under the right clavicle, and a blowing sound at the lower angle of right scapula; not the slightest indication of the entrance of air into any other part of right lung. The heart has changed its location entirely; it is now, as indicated by the dulness on percussion, the impulse to the hand, and the sounds to the ear, in the right inferior thoracic region. The line of pulsation and sound is considerably to the right of the zyphoid cartilage; pulsation is no longer evident in the epigastrium: with respect to size and sound the heart seems natural. Left side: the respiration is loud, rough, and puerile, except in

two places; behind, near the spine, the loud tracheal blowing still exists, and in front, from the clavicle to the third rib, it is almost natural; but the greatest peculiarity is the vast extent occupied by the lung; the loud, rough, puerile respiration extends from the spine behind to a line an inch to the right of the middle line of the sternum, and down to the very lowest false rib below. Percussion very clear at all these points, and no cardiac impulse or sound evident on the left side at all. Every morning, he has a long and difficult paroxysm of coughing and expectoration, and spends the rest of the day quite comfortably. Sept. 5th.—Was suddenly called to see him and found him labouring under severe pleuritic pain in his right side, and intense dyspnœa, very bad cough, and tumultuous action of the heart; bled sixteen ounces, and other necessary treatment. 6th.—Says he breathes with more freedom than he has done in five years: on the application of the stethoscope this morning I was surprised and pleased to observe that the air entered freely into the right lung; distinct and clear respiratory murmur all over the right side of chest not occupied by the heart; a considerable crepitus about and behind the mammary region, attended with some dulness. At sunset had another severe attack of dyspnœa; found crepitus had extended, and some bronchial râles above. 7th.—Rested tolerably and breathes freely, although there is some cough, and the dulness, crepitus, and bronchial râles are still ascending; twelve leeches above right nipple and seven in the supra-sternal fossa. 8th.—Seemed to be improving every way. 9th.—Rested badly last night, had great trouble about his heart; says he felt as if he had a parcel of stones rumbling together in his chest; applied two blisters, 5 in. long  $3\frac{1}{2}$  wide, one to right side, and one to epigastrium: from the 10th to the 17th the inflammation continued to ascend until it nearly reached the clavicle, accompanied by crepitus, bronchial râles, and dulness; had prune juice expectoration two days, although he was leeches on the 11th and 12th, and on the 13th two more blisters to upper part of sternum and below right mamma. On the 17th the respiration was entirely tracheal below third rib, and percussion perfectly flat; blister over pectoral muscle; directed porter, and a preparation of infusion of senega, tinct. scill., carb. ammon., and tinct. op. camph. 18th.—Dressed blisters with mercurial ungt. and ordered blue pill 5 gr., calom. 1 gr., op.  $\frac{1}{2}$  gr., every three hours until ptialism was produced. 19th.—Considerable expectoration of muco-purulent matter and great relief; loose bronchial râles all over right side of thorax; applied seven leeches; from this time the hepatisation was gradually resolved; the dulness gave way from above downwards.

On the 23d, 4th, 5th, and 6th, very much prostrated by drenching perspirations. 27th.—Had a severe attack of hemorrhoids, preceded by severe constitutional irritation, but ultimately producing a natural and very beneficial derivation. State on the 30th.—Countenance bright and natural; pulse soft and regular; tongue not furred; appetite good.

*Physical examination.*—Some bronchophony still remaining, above and outside of right mamma, with flatness on percussion; respiration distinctly heard, dextrad to the heart; respiratory murmur pretty natural from clavicle to below fifth rib. Heart seems to be about its natural size, and decidedly more in the middle of the thorax; impulse can be felt, and sounds heard to the left of the zyphoid cartilage; the left lung has apparently retired an inch to the left of the middle of the sternum, and I think does not extend so far down among the false ribs, and the respiratory murmur is much less rough and puerile. 26th Oct.—Very much in the old state, feeble, bad cough, dyspnœa, free expectoration. Respiration obscure below the scapula on the right side behind; some tracheal blowing to the left of spine. In front, and on the right side, percussion is resonant from clavicle to between sixth and seventh ribs, where it is dull; below this is the heart lying obliquely, it would seem, with the great vessels ascending towards the articulation of the fourth rib and sternum. Some bronchophony still remaining under seventh rib below mamma, and the clear resonance still extends from

supra-spinal fossa and clavicle down to the twelfth rib. Respiration on right side, in front, tolerably natural sometimes, but frequently almost entirely obstructed, and occasionally quite so, (and says he feels as if he had a valve flapping up and down;) after the expectoration of thick tenacious mucus, the respiration is much more distinct; on the left side, in front, the respiration is pretty natural from clavicle to fourth rib; respiration in other parts of left side about as on 30th Sept., though the lung still extends from clavicle, axilla, and scapula, down to the twelfth rib, as evidenced by the rough, puerile breathing, and clear resonance. 11th November.—I was pleased to notice this morning important changes, both in rational symptoms and physical signs; coughs and expectorates very little, and breathes quite easily; the heart can again be heard, and its impulses felt to the left of sternum, and zyhoid cartilage. Respiration in front, on the right side quite free and unobstructed; some obscure bronchial respiration below yet; behind, obscure; between scapula and spine, inaudible; voice resonant. On the left side the respiration generally softer and less puerile, and cannot now be distinguished below the tenth rib. I have said very little about the treatment pursued in the preceding case, from an anxiety not to occupy more room than was absolutely necessary; it consisted principally of those means recommended by the most judicious observers for the removal of chronic bronchitis, with a proper reference to the local lesions. A moderate but sufficiently energetic recourse was had to the various modes of local depletion and counter-irritation, scarificators and cups, pustulating ointments, stimulating liniments, and plasters, setons, &c.; a long and systematic course of moderate purgation, with pills of aloes, myrrh, sulph. iron, and ext. taraxaci, with the occasional addition of hydriodate of potass., a gentle ptyalism in April, after which he improved rapidly for some time.

In some of its characters this resembles a case reported by Dr. Stokes, in p. 331, of his work on the Chest. Some of the principal points worthy of notice in this case were,—1st. The great apparent decrease in the size of the heart, under the use of treatment adapted to remove congestion and chronic inflammation in the liver, spleen, and thoracic viscera. 2d. The complete removal of the heart from its natural position into the right mammary region. 3d. That when the obstruction in the right lung was removed (of whatever nature) the heart again moved, and buried itself under the sternum. 4th. That when the obstruction was renewed, along with other catarrhal symptoms, the heart again resumed its position to the extremity right, and higher up in the mammary region. 5th. That when the breathing again became free and unobstructed, the heart commenced moving to the left under the sternum, and its pulsations can now be heard, felt, and seen to the left of this bone. 6th. The immense extent occupied by the left lung on the 15th of Aug.; the intense puerility of the respiration on this side, and the modification of these two phenomena, as the obstruction was greater or less, minutely corresponding in these respects with the change of locality in the heart.

Case of G.—Habit delicate, hair not light; his father died of phthisis, and has a consumptive sister. Has been subject to breast complaints since sixteen years of age; underwent laborious exercise and was considered consumptive at seventeen, the symptoms of which were removed on changing his residence from New York to this state; at eighteen resumed a laborious and sedentary occupation, and had a maltreated gonorrhœa, during the course of which he salivated himself; has a malformation of septum narium, which produces a disagreeable sensation of dryness and a constant snuffling, In an attack of illness three years since, was accidentally ptyalised; ever since which his gums have been very sensitive and hemorrhagic, and has been obliged to *bolt* his food unmasticated, whereby his digestive organs have been very much disordered, acid eructations, heaviness, indigestion, &c.; has experienced dry disagreeable sensations in his throat. Had hæmoptysis three and two years since; the first was slight, and preceded by



cough and other pulmonary symptoms; last time by great mental excitement. Says his cough has always been dry, but I think I have seen him expectorate a mucous matter—never any purulent or calculous.

State on 10th Feb. 1839.—Slight pain in the back of thorax and right side; says he has had no hectic fever for a year, but confesses to resting badly; more emaciated at present than for some time. Some atrophy under the clavicles, greater under the left; pulse soft and slow, 58 to 60; breathing 20; no peculiarity in decubitus; pharynx, larynx, and trachea, apparently natural; never had any external scrofulous developement; acutely sensible to cold in his chest and neck. Auscultatory examination.—Both clavicles dull on percussion, which dullness extends down as far as the fourth rib on the right side, and the third rib on the left. I can perceive no difference in the relative degree of dullness between the right and left. The spine, the supra and infra scapular regions, and the medio-scapular regions, are all dull on percussion: minutely corresponding to the points of dullness, the respiratory sounds are inaudible, except under the middle of the right clavicle, where I perceive distinct sonorous and sibilous râles extending downwards and forwards half an inch below the clavicle, (it is also painful on pressure over this place;) humerad to this (over the subclavian) the pulsations of the heart are distinguished almost as loudly as in the cardiac region, the respiratory heard below the third and fourth ribs as above, but not puerile any where,—in the left axillary region, extending as far down the side as the sixth rib; during inspiration a short rustling or rubbing sound is heard, synchronous with the contraction of the heart, not heard during expiration. Diagnosis.—Tubercles in upper part of both lungs, and a small cavity in the upper and anterior part of the upper lobe of the right lung. Directed four or five leeches to be applied to the subclavicular regions, as many on the left to-morrow, and so on; St. John Long's liniment to be diligently rubbed in on other parts of thorax;  $\frac{1}{4}$  gr. of murias morph. at night; a sedative cough mixture during the day, and belladonna inhalations every night. It was pleasing to observe the rapid improvement in the rational symptoms and physical signs. On the 12th there was a marked decrease in the intensity of the sonorous and sibilous râles under the middle of the right clavicle, and obscure respirations could be heard below the left clavicle. On the 15th the siffling, sibilous, and sonorous râles, under the middle of the right clavicle nearly gone. Respiration much more distinct from both clavicles to the third ribs, but still very obscure under the third rib on the left, and the third and fourth on the right side; the loud pulsating sounds nearly gone; a slight rubbing sound heard under the middle of right clavicle, probably denoting some pleuritic inflammation; the rubbing sound in the left axilla hardly perceptible; scarified and cupped under the right clavicle, and continued other means; directed cupping or leeching under one or other of the clavicles every third day. 20th.—Removed that part of the deformed septum which projected into and almost entirely obstructed the left nostril; directed him to apply a solution of nit. arg., gr. ii. to the ounce, to his irritable gums twice daily. 24th.—Improving in every respect; percussion clearer in all parts of the thorax, and respiration manifest every where; some dullness under third rib on left side, and fourth rib on right, attended by some obscurity of respiration; a peculiar roughness in the respiratory murmur on the right side in front, from clavicle to third rib; nose nearly well, much improved in appearance, and the disagreeable snuffling which he has had for years removed. It is unnecessary to continue these daily reports. The physical signs approached more nearly to the natural standard every day, although the roughness in the respiration in the upper part of right lung was not removed, nor the rustling or rubbing in the right axillary. He increased in muscularity and activity rapidly; his pectoral and his thoracic muscles generally, and his voice, became clear and strong. During the treatment he was confined to his room as much as possible, and to a farinaceous and milk diet. In April he went to the north and returned, 15th Oct., in the enjoyment of fine

active health; though on making a superficial examination of his chest a few days since I thought that the respiration was somewhat feeble on the right side in front, and the rubbing sound in the left axilla was distinctly heard.

JAMES M. GREEN.

### ART. III.—REPORT OF EXPERIMENTS ON THE ACTION OF THE HEART, &c.

BY C. W. PENNOCK, M. D., AND E. M. MOORE, M. D.

[On a former occasion, when referring to the experiments and observations of M. Beau on the sounds of the heart,<sup>1</sup> we stated, that a zealous and able friend was about to be engaged in investigations, from which we expected that light would be thrown upon the subject. That friend was Dr. Pennock,—whose untiring zeal for the advancement of medical knowledge, no matter at what expense of time or money, is well known to his professional brethren in this city.

From his accurate acquaintance with the heart in its normal state, his ability as an observer, and dexterity as an experimenter, the results contained in the following paper—originally published in the *Medical Examiner*—may be received with implicit confidence; and it is not a little gratifying to ourselves to find, that they accord so closely with the views which we have published<sup>2</sup> and taught, as regards the sounds of the heart, and the action of the auricles more especially.]

Impressed with the importance of the experiments to illustrate the heart's action, instituted a few years since by some European physiologists, we had resolved, more than a year past, to repeat them upon the first favourable opportunity. We were the more anxious to perform them, as the subject is one that has received but little attention in this country, and the profession seems scarcely aware of its importance. Circumstances, however, prevented us from carrying our designs into effect until a short time since; when upon application to an intelligent victualler in a neighbouring village, every facility was afforded us. We have been assisted by several medical gentlemen; but to Dr. Hardy, of the Philadelphia Hospital, who aided us in all the experiments, may be mainly attributed their successful results. We were also kindly assisted by Dr. Wood, Resident Physician of Frankford Asylum, Dr. Stillé, of Pennsylvania Hospital, and Mr. Burns, of Mobile.

Before proceeding to detail the experiments, we may say that the stethoscopes or ear-trumpets used were flexible, constructed of a coil of wire covered with gum elastic and silk; one, about four feet long, the ear-piece and hollow cone for the reception of sound, being of horn; the other, about two feet long, the ends composed of block-tin, and smaller than the first. This instrument is essential to the success of the experiment, as the impulse is so great with the ordinary stethoscope as to render the analysis of sound very uncertain. In measuring the heart, the ordinary shoemaker's measure is used, by which very accurate results may be obtained. Artificial respiration was maintained by the bellows, at eighteen to twenty inflations of the lungs per minute.

*Experiment 1st.*—Present, Drs. Hardy, Wood, Pennock, and Moore. A ram, about one year old, was selected. Owing to the alarm of the anima

<sup>1</sup> *Intelligencer* for June 16, 1839, p. 81.

<sup>2</sup> *Human Physiology*, vol. ii. p. 159. 3d edit. Philad. 1838.

it was found extremely difficult to ascertain the natural pulse and respiration; but during the time he was most quiet, the former ranged from ninety-six to one hundred and eight per minute, and the latter from thirty to forty in the same time. The stethoscope applied to the left side of the chest, opposite the fourth rib, revealed the sounds of the heart distinct and normal, but faint. Upon the sternum, in the same line, they could scarcely be distinguished. The animal was then deprived of sensation by several blows upon the anterior portion of the cranium; and the bellows-tube being immediately introduced through an incision in the trachea, respiration was artificially sustained. An incision was then made down upon the sternum, and extending its whole length, with a knife whose edge was purposely roughened to prevent hemorrhage. The bone was then divided longitudinally by a saw, and its parts separated by hooks, thus presenting a cavity of six or eight inches in diameter. Ten minutes had elapsed from the time the blow was given until the chest was opened, but the heart was still observed to beat irregularly and very rapidly. The excitement, however, soon subsided, and the heart pulsated regularly, and with a frequency of ninety-six per minute. The stethoscope was first applied to the heart—the pericardium being still unopened—and the sounds were observed to be of the same character as previously observed, but much louder. The first sound appeared to occupy about one half of the whole time of a pulsation; this was followed by the second, which is about one half as long as the first, or one fourth of the whole, and is more flapping than the first; the remaining time is occupied by repose.

The head of the auscultator being averted, and his eyes closed, the end of the stethoscope was applied by an assistant to the base near the valves, and to the body of the heart alternately; and it was decided by each in succession, that the first sound was louder over the body of the ventricles than near the valves, while the second sound was much more distinct near the valves than over the ventricles elsewhere. The change, however, modified the second sound much more than the first. A portion of the lungs being interposed we found the sounds duller, but in other respects of the same character. The anterior portion of the pericardium was then removed, and the heart exposed, presenting the right ventricle and auricle, and a small portion of the left ventricle, the auricle being concealed behind the heart. During the ventricular systole, the right ventricle was observed to be flattened, and the finger and stethoscope being applied, the first sound and impulse occurred at the same time. During this contraction the base of the heart revolved for a short distance to the left, supposed to be about one sixteenth of a circle, while the apex turned to the right at the same moment, thus causing the heart to assume a spiral form during the systole. The transverse diameter was much diminished by this systole; during diastole it increased, and the heart assumed a rounded appearance. The stethoscope was again applied in the same manner as heretofore detailed, and with the same result. A comparison being instituted, with the head averted as before, between the character of the sounds over the right and left ventricle, it was unanimously conceded, that on the right the first sound was flapping and shorter than on the left, while on the latter it was prolonged and rushing. Such was the rapidity of the heart's action, that some difference of opinion existed with reference to the relative contraction of the auricle and ventricle. Drs. Pennock and Wood being of the opinion that the ventricular systole is immediately followed by the auricular contraction, which is synchronous with the ventricular diastole; or to detail the succession more accurately, we have, 1st, the systole of the ventricles occupying one half of the whole time, during which systole the auricle dilates; 2d, immediately at the termination of the systole, the auricle contracts, and the ventricle dilates synchronously, occupying one fourth of the whole time; 3d, the state of repose follows, in which the ventricle is full, occupying the remaining time. Dr. Pennock is of the opinion, that the auricular contraction occupied rather less time than the

period of repose. Dr. Moore coincides with this opinion, except in not considering the emptying of the auricles, during the diastole of the ventricles, the result of active auricular contraction, but of simple distention, relieved by the diastole of the ventricle, and thinks he perceives a contraction of the auricle at the termination of repose, immediately preceding the ventricular systole. The first sound, impulse, and ventricular systole, were synchronous. There was, however, an appreciable difference between the contraction of the ventricles, and the pulse, increasing as the distance from the heart was greater. The pulse varied from eighty-four to ninety-six, becoming irregular when the artificial respiration was omitted or too rapid.

The heart pulsated two hours after opening of the chest.

*Experiment 2d.*—Present, Drs. Hardy, Pennock, and Moore. A ram, about a year old, whose pulse was irregular, but seventy-eight per minute, was selected for the experiment, on account of the slowness of the heart's pulsation, which facilitates the analysis both of the sounds and motion. Sensation was destroyed by blows upon the head, as in the preceding experiment, and the chest opened as before, but the heart beat feebly and irregularly, being congested, and expelling but a small portion of its contents. The sounds were feeble over the right ventricle, (not observed over the left,) and the second soon disappeared entirely; but the first sound remained, whilst the heart contracted, which ceased to beat in a short time.

*Experiment 3d.*—Present, Drs. Hardy, Pennock, and Moore. A ram, six months old, was chosen; pulse, 102; respiration, 32. Was struck upon the forehead anterior to the horns. Some difficulty was experienced in introducing the tube connected with the bellows, and in opening the chest. Fifteen minutes elapsed before the heart was exposed. It was found congested and its action irregular. The sounds were more feeble and the heart contracted less forcibly than in the first experiment, but the coincidence between the impulse and the ventricular systole were the same, as were also the spiral motion, the peculiar character and succession of the sounds, as well as their comparative intensity at the base and body of the heart. Suspecting from the experiments of others, as well as from the facts we had observed, that the semilunar valves were concerned in the production of the second sound, we attempted to elevate them by hooks introduced into the aorta and pulmonary artery, and note the effect upon the sounds. In consequence of puncturing the artery, hemorrhage succeeded, and we failed in our purpose. The heart, while still beating, was removed from the body, and the stethoscope applied to the ventricle. It continued to contract many times while in the hand, and during contraction, a sound resembling the first sound was heard, differing only in being more feeble. But one sound was heard. The ventricles were then slit open longitudinally, and emptied of blood, and the same sound was elicited. Pulse fell at one time to 84 per minute. Heart beat three fourths of an hour.

*Experiment 4th.*—Present, Drs. Hardy, Pennock, and Moore. A ram, about a year old, was opened as in experiment 3d. Our attention was now directed exclusively to raising the semilunar valves, but without success. The heart was again removed as in former experiments, the ventricle and right auricle cut open, and emptied of blood, and the fingers thrust into the apertures, thus elevating the tricuspid and semilunar valves. A sound precisely similar to that in the last experiment was detected, but less intense.

*Experiment 5th.*—Present, Drs. Hardy, Wood, and Moore. A ram, about a year old. We administered two drams of Allen's prussic acid, containing ten drops of the pure acid. Spasmodic breathing was induced in a few seconds. At the expiration of one minute and a half, the trachea was opened; and respiration established at the end of two minutes. Immediately upon cutting through the integuments, no blood was observed to flow. At the end of four minutes, the heart was exposed, but perfectly motionless and enormously distended.

*Experiment 6th.*—Present, Drs. Hardy, Pennock, Moore, and Mr. Burns.



The animal, a ewe, one year old. Deprived of sensation as before. Opened in fifteen minutes. Heart contracted irregularly at first. Same character of first and second sound; same relation of pulse, impulse, and ventricular contraction, and same comparative character of sounds upon the left and right ventricles as in first experiment. Heart did not contract vigorously as in first experiment, and when the right ventricle became congested, the second sound disappeared over it. The contractions of the two ventricles were also synchronous. The heart being allowed to rest upon the collapsed lungs, the apex was not observed to rise. The heart during the contraction of the ventricle diminishes transversely, but elongates about one fourth of an inch, as measured from base to apex. We again failed in elevating the valves. The heart was removed as in experiments 3d and 4th, with the same results.

*Experiment 7th.*—As those experimenters who had preceded us had found greater success upon the calf, we procured one about nine days old. It was deprived of sensation by a blow upon the occiput. Some difficulty was experienced in opening the trachea, and two minutes had elapsed before artificial respiration was commenced; and upon opening the chest, life was extinct; a few very feeble contractions being observed in the right ventricle.

*Experiment 8th.*—A calf, five days old; pulse, 130; respiration, 32. Both sounds heard distinctly through the chest. The animal was struck upon the forehead, immediately above the frontal sinus. The chest opened as in first experiment. Same spiral motion observed during contraction. The elongation at the same time one fourth of an inch, as measured from union of aorta and ventricle to the apex. The whole heart has an apparent motion from the base towards the apex, and the pulmonary artery turns partially around the aorta, which is a fixed point, describing about the arc previously mentioned. The same flattening of right ventricle during its contraction as before observed. When the stethoscope was placed upon the aorta, two inches above the valves, both sounds were heard, but the second sound much louder than the first. Over the pulmonary artery both sounds were faint, but especially the second, which disappeared as the heart became feeble. A curved needle was passed into the aorta, but the sounds were indistinct, and the second appeared to be absent sometimes, and not at others, when the hook was in the artery. Upon examination after the removal of the heart, it was found that the valves were sometimes elevated, and at others not.

(Concluded in our next.)

## BIBLIOGRAPHICAL NOTICES.

### *Louis on Yellow Fever.*<sup>1</sup>

The author of this treatise is so well known for his accuracy of observation, that any thing proceeding from his pen merits every attention. The nature of the work is well explained in the title; and all we shall do is to

<sup>1</sup> *Anatomical, Pathological, and Therapeutic Researches on the Yellow Fever of Gibraltar of 1828*; by P. Ch. A. Louis, Physician to the Hotel-Dieu, President for Life of the Society for Medical Observation of Paris, &c. &c. From observations taken by himself and M. Trousseau, as members of the French Commission at Gibraltar. Translated from the manuscript by G. C. Shattuck, Jr., M. D., Member of the Society for Medical Observation at Paris, Fellow of the Massachusetts Medical Society. 8vo, pp. 374. Boston, 1839.

give his recapitulation of the lesions, and what he conceives to be the appropriate treatment of the disease.

"*Lesions.*—1st. In the cases where we found an effusion of serum in the arachnoid cavity, or in the lateral ventricles of the brain, or in the sub-arachnoid tissue—the quantity of it was inconsiderable.

"2d. The pia mater was injected in six cases.

"3d. The cortical substance of the brain was rose or violet in nine cases.

"4th. The medullary substance of the same organ was decidedly injected in five cases, of a less consistence than usual in one subject; of a slight unequal non-continuous lilac tint in another.

"5th. The cortical substance of the cerebellum was rose or violet in six cases.

"6th. In all, the spinal arachnoid contained from two to four ounces of clear serum.

"7th. The spinal marrow was flaccid through its whole extent in two cases, examined six and twenty-two hours after death. Its cohesion was greater than natural in another case.

"8th. The epiglottis was red, its mucous membrane more or less thickened, and partially so, in two cases.

"9th. That of the larynx was of a bright red in two cases.

"10th. The mucous membrane of the trachea was red and a little softened in one case.

"11th. We found black spots, and generally many of them, through the whole thickness of the lungs, in nine subjects. They were of different dimensions, and the tissue surrounding them increased in density in most of the cases. This was sometimes entirely deprived of air in consequence of the effusion of a greater or less quantity of blood more or less combined with air. In six cases we found in the lungs tumours of a blackish red colour, of an irregular form, containing no air, not granulated, more or less firm, without evident organisation.

"12th. In one case we found in each pleura an effusion of six ounces. They contained one or two spoonfuls of the same liquid, more or less colourless in five other cases.

"13th. In five cases we found one or two spoonfuls of lemon-coloured serum in the pericardium, in one case the serum was red.

"14th. The heart was flaccid, softened, or less coherent than usual, in seven cases, and in four of them its lining membrane was red.

"15th. The aorta was rose-coloured or red internally in the whole or in a part of its extent in six cases.

"16th. The colour of the pharynx was slightly altered in three fifths of the cases.

"17th. In the same cases there was a similar alteration of the tonsils, the size of which was increased in two cases.

"18th. The œsophagus was completely deprived of epidermis through its whole length in a third part of the cases, and partially so in a greater number.

"19th. The stomach was larger than natural in seven subjects, smaller than usual in three. It contained a clear or dark red coloured liquid, a blackish or a perfectly black fluid, in different quantities, in three quarters of the cases. Its mucous membrane was red through a greater or less extent in six cases; rose-coloured or orange in eight cases; grayish, yellowish, or whitish, in the others. It was thickened through a greater or less extent of surface in half the cases; softened and yellow to an extreme degree in the same number; at the same time thickened, softened, and red, in a third part of the cases; mamelonated in two thirds: ulcerated in two cases. It was natural in five cases.

"20th. The mucous membrane of the duodenum was red in a little more than half the cases, softened in the same number, and thickened in one case.

"21st. The small intestine contained a greater or less quantity of reddish, brownish, blackish, or perfectly black matter, in two thirds of the cases. Its mucous membrane was slightly injected or red in spaces, in little less than half the cases. Its consistence was more or less diminished through its whole length, or through a part of its extent only, in rather a greater number of cases. It was partially thickened in one case, in no case was it ulcerated, and Peyer's glands were always natural.

"22d. The large intestine was of a greater size than usual in two cases. In fifteen cases, it contained a matter of a wine lees colour, or blackish, or brownish, or chocolate coloured, or entirely black. Its mucous membrane was of a pale or bright red colour in five cases, grayish, yellowish, or, whitish, in the others. Its consistence was more or less diminished in three quarters of the subjects. Its thickness was increased in three cases, and twice we found it slightly ulcerated.

"23d. The mesenteric glands presented traces of inflammation in four cases, the cervical glands in one case; in another case one of the glands about the *biliary ducts* was red, softened, and very large.

"24th. The liver was of a greater size than natural in two cases; a little firmer than usual in three cases, a little less firm in three others. Its cohesion was increased in six cases, diminished in seven. Its colour was altered in every case; sometimes it was of the colour of fresh butter, sometimes of a straw yellow, a clear coffee and milk colour, sometimes of a gum yellow, sometimes of an orange colour.

"25th. The spleen was softened in eight cases, and to a moderate degree, with one exception. It was larger than usual in five cases.

"The lesions which we have thus placed before the reader, were rarely considerable, very often insufficient to explain the death, and when this explanation was afforded, it was by a combination of several lesions.

"These lesions may be divided into two classes, some of them peculiar, or almost exclusively peculiar, to subjects dying of yellow fever, others common to those subjects, and to subjects who have died of other acute diseases. The red or black matter found in the alimentary canal, and the remarkable alteration of the liver, are of the first class, all the other lesions of the second.

"The red or black matter of the stomach and intestine not having been found in all the cases of yellow fever, it cannot be considered an anatomical character of that disease. But it is not so with the alteration of the liver, which was more or less exactly the same in all the cases, and which, for that reason, ought to be considered as the essential anatomical character of the yellow fever of Gibraltar, of 1828.

"Amongst the lesions of the second class, the yellowness and inflammation of the mucous membrane of the stomach should be especially remarked, as well from their frequency, as on account of the rapidity with which they came on. The inflammation of the mucous membrane of the stomach not having taken place in all the cases, and Peyer's glands not having ceased to be natural, it follows, on the one hand, that the yellow fever of Gibraltar, of 1828, is not a gastritis, and on the other hand, that it is not a typhoid fever. This last conclusion is even more strict, for not only was there an absence of the lesions of typhoid fever in the bodies of the victims of yellow fever, but these bodies presented other lesions which are not found in the victims of the first disease, and which are peculiar to the second disorder.

"What then is the nature of the yellow fever of Gibraltar, of 1828, and where is the seat of it? If it be neither a gastritis nor a typhoid fever, neither is it a hemorrhage, as it has lately been said to be, for the hemorrhage did not take place in all the cases. Is it a disease of the liver? Undoubtedly the liver was the organ principally and essentially affected; still we cannot regard the yellow fever as simply a disease of the liver, because its lesion, at least in the present condition of science, does not explain the

febrile symptoms in the cases where this was the only lesion, and in the second place, because it is entirely insufficient to explain the death.

"As then a strict analysis of the anatomical appearances of the yellow fever of Gibraltar, of 1828, proves the existence of a cause, unequal in its operation, and of which but one effect is constant, the specific alteration of the liver, and as in a third part of the cases, it is directly to this cause that we are obliged to refer the death, we naturally ask how does this cause act, through the medium of what system does it exert its influence on the economy? Is it through the nervous system, is it through the blood, in which, however, we have not detected any especial modifications?—p. 164.

In the absence of any treatment, the utility of which has been demonstrated by experience, the following M. Louis considers to be pointed out by a study of the symptoms and lesions.

"*Treatment.*—General blood-letting should be had recourse to at the commencement of the disease, and the quantity of blood taken should be in proportion to the febrile symptoms. As these are generally moderate, from 15 to 16 ounces would be sufficient, and where the patient is very strong, or the febrile symptoms are very intense, the bleeding may be repeated. This bleeding should be made in the course of the first twenty-four hours; and although we cannot propose it as a means to prevent an inflammation of the brain, no traces of which were found at the autopsies, nor to remedy any serious mental disorder, which did not exist, still, on account of the head-ach, the blood had better, perhaps, be taken from the foot than from the arm.

"The effects of the blood-letting should be seconded by the use of cool and slightly acid drinks, such as lemonade, orangeade, currant vinegar water, or a solution of gum syrup, if the stomach bears that better than any other kind of drink, and, if possible, the patients should drink from two to three pints, or even more in the course of the twenty-four hours, provided so much liquid does not excite vomiting. The intestinal canal should be evacuated by means of mild enemata, repeated two or three times in the course of the twenty-four hours, and since the gastric mucous membrane is inflamed in four fifths of the cases, and possibly is so at the commencement of the disease, or soon after, emollient fomentations may be applied to the epigastrium.

"But if the vomitings should suddenly become very frequent, or the epigastric pain very severe, a general blood-letting having been made, would an application of leeches to the epigastric region be advisable? Here, we ought to distinguish the cases in which the febrile symptoms are unabated, or slightly increased, from those, where, with an increase of the epigastric pains and the vomitings, the febrile symptoms are diminished. In these last cases, we certainly ought to abstain from all evacuations of blood, and in the first cases, we might hesitate about using them; for, as in most cases the death is unexplained by the condition of the organs, it is not in consequence of an excessive inflammation of any organ that the patients die, nor can blood-letting be considered the principal remedy of the disease. And, as facts are of more value than inductions, we must remember that at the commencement of the Gibraltar epidemic, the bleedings were large. This remedy, then, is to be employed with hesitation. Still, where a patient is very strong, and where the circumstances of his case are such as have been pointed out, we should be justified in taking eight or ten ounces more of blood from a vein, or in the application of twenty leeches to the epigastrium. This last mode of blood-letting, in my opinion, is not to be preferred to all others, since experience has not clearly demonstrated its superiority in gastritis to venesection.

"One important symptom, however, demands particularly the attention of the physician, to prevent or to arrest it. I refer to the hemorrhage, and particularly to the gastro-intestinal hemorrhage, which takes place in the severe



cases, and which is almost invariably a fatal symptom. And here we may find another reason for free, copious bleedings; since, in ordinary practice, blood-letting is employed at once, to prevent and to arrest hemorrhage. But, besides that blood-letting is less properly the remedy of hemorrhage than it is generally believed to be, experience has shown that the black vomit and black stools were not less frequent at the period when the physicians bled largely, than at that when they had nearly abandoned bleeding. Repeated and abundant bleedings cannot, then, be regarded as a means of preventing gastro-intestinal hemorrhage; and we find other reasons for abstaining from them, in the smallness of the pulse, and the diminution of the temperature accompanying the hemorrhage. What other means, then, are to be opposed to this symptom?

"I have shown that the black matter vomited and voided per anum, did not come entirely from the gastric mucous membrane, but that, in all probability, a part of it was exhaled by the intestinal. Then, a remedy for gastro-intestinal hemorrhage being found, it should be applied to the mucous membrane of the intestine, as well as to that of the stomach; and as we know how frequently this last was found in a state of inflammation, and how seldom the intestinal mucous membrane was in the same condition, we should be disposed to apply our remedies to the latter, and would suggest something astringent. This appears the more rational, inasmuch as the condition of the organs with which the deposit of black matter is connected, is not inflammation, the mucous membrane of the stomach not offering any traces of it in some cases where that viscus contained a good deal of brownish or blackish liquid. It would, perhaps, be well to prescribe astringents before the appearance of the black stools, when the temperature falls, at the end of the third, or in the course of the fourth day of the disease.

"Undoubtedly writers have gone too far, and much too far, in considering the yellow fever as a hemorrhagic disease, and pointing out astringents as its true remedy. For, on the one hand, the quantity of blood lost affords an explanation of the fatal termination of the disease in but very few cases; and, on the other hand, patients die who have never had any hemorrhage at all, and this symptom is rarely met with in patients who recover. Still, it ought to arrest our attention, since, in the cases where it exists, it has more or less to do with the fatal termination of the disease.

"The condition of the liver should also engage our attention; since, in all the cases, its alteration appeared to commence with the first symptoms, and perhaps many therapeutical agents might be directed against it. Unfortunately, the nature of that alteration is unknown to us, so that we cannot propose a remedy to be used against it with any chance of success. The discovery of the remedy must be left to time and chance, and to the acuteness of the observer, for experience has sufficiently proved that no dependence is to be placed on mercurial preparations of any sort.

"As the frequency of an inflammatory condition of the stomach would seem to contra-indicate the use of anti-spasmodics at all energetic, such as ether, we might try opiate preparations, which would be better adapted to the state of the stomach, and the free employment of which is permitted by the condition of the cerebral organs.

"I have proposed here, merely to point out the principal indications to be fulfilled up to the period of convalescence, and as there is nothing particular in that state, so far as the treatment is concerned, I shall end by asking if some disturbing means might not be employed in the first period, when the heat is considerable, such as cold baths or cold affusions; and if, in the second period, when the temperature is diminished, and becomes below the natural heat, a hot water or vapour bath might not be advantageously used.

"As to mild cases, where the febrile symptoms are inconsiderable, and the headach moderate, cool drinks and emollient enemata appear to be the only remedies which it is advisable to employ; the disease under this form advancing towards a favourable termination. I shall not bring the facts col-

lected by us to the support of this proposition, and I can only say that, having been called on to take charge of two persons of rather feeble constitutions, and in the prime of life, whose febrile symptoms were inconsiderable, and did not continue beyond the third day, I employed no other means than a bath in one case, at the commencement of the disease, and a little castor oil in the other, at the commencement of the convalescence, to overcome constipation.

"Although I have already said that there are no particular indications in the convalescence, I may remind the reader that the inflammation of the mucous membrane of the stomach, usually slight, and never severe in fatal cases, is still less severe, judging by symptoms, in those who recover; that the gastritis is secondary, and disappears quickly; so that it is not necessary to keep the patient a long time on a strict diet. If the weakness was prolonged, or very great, we might follow the example of the Spanish physicians, and give some slight tonics, such as bark or quinine."—p. 339.

Dr. Shattuck deserves great credit for the translation, which is much superior to the generality of the works done into English, that issue from the medical press. We would suggest, however, that "five small spoons full of serum," contained in the arachnoid cavity, means that the spoons were there, as well as the *spoonfuls* of serum!

The work is better got up by the Publishers than any one that we recollect to have seen.

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#### *Professor Gibson's Introductory Lectures.<sup>1</sup>*

These lectures contain interesting sketches of the prominent medical characters, who came under Professor Gibson's notice during a residence of several months of the present year abroad. They are graphic, and, we think, free from the objections, which it is difficult to avoid, in giving sketches of personal appearance and character. The professional characters most prominently, and we think—so far as we have personal knowledge—faithfully depicted, are—Sir A. Cooper, Sir B. Brodie, Mr. Lawrence, Mr. S. Cooper, Mr. Copeland, Mr. Guthrie, Mr. Bransby Cooper, and Mr. Liston. The author refers also, at some length, to Sir James Clark, the able and estimable physician to the Queen of England. In the second lecture, the prominent surgeons of Paris are described:—Velpéau, Roux, Lisfranc, Ricord, Civiale and Leroy d'Etiolles.

The whole tone of the lectures is liberal, and generally laudatory.

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#### MISCELLANEOUS NOTICES.

*Nitrate of Silver in Phlogosis of Mucous Membranes.<sup>2</sup>* (Journal des Connaissances Médicales Pratiques, May, 1839.)—M. Boudin has extended the application of nitrate of silver to the cure of inflammations and ulcerations of the ileum, which constitute one of the most constant lesions in

<sup>1</sup> Sketches of prominent Surgeons of London and Paris, introductory to a course of Surgical lectures, by William Gibson, M. D., Professor of Surgery in the University of Pennsylvania, Senior Surgeon and Clinical Lecturer to the Philadelphia Hospital, &c. &c. Delivered November, 1839. 8vo. pp. 17. Philad., 1839.

<sup>2</sup> Edinb. Med. Journal, Oct. 1839, p. 579.

typhoid fevers. When diarrhoea is the principal symptom, he administers the nitrate in enema, in the dose of from two to eight grains dissolved in six ounces of distilled water; and when gastric symptoms predominate he gives it by the mouth in pills, in the dose of a fourth to half a grain; and when the whole gastro-intestinal mucous membrane appears phlogosed he combines the two modes of administration.

*Surgical Pathology and Surgery. Section of the Muscles for the Cure of Lateral Curvature of the Spine.*<sup>1</sup> (Compte rendu des Séances de l'Académie des Sciences. Juin 24, 1839.)—M. J. Guérin informs us that he has already operated, with success, on twelve cases of lateral curvature of the spine; the operation consisting in the division of certain muscles of the back and of the spinal column. The muscles which he has already cut across, are the *trapezius*, the *rhomboideus*, the *levator angula scapulae*, the *sacro-lumbalis*, the *longissimus dorsi*, the *spinalis dorsi*, and *transversalis colli*.

"I have been convinced for a long time past," says he, "that the greatest number of articular deformities arise from convulsive muscular contraction, depending on an affection of the brain, of the spinal marrow, or of the nerves themselves, which are distributed to the muscles. This opinion, therefore, led me naturally to the two following conclusions, viz. 1. That the different forms which each of the varieties of curvature are capable of assuming are the consequences of a retraction affecting this or that muscle; 2. That the active treatment of each of these should consist of section of the tendons or muscular fibres which were the cause of each particular variety of curvature.

"These theories were put to the test of experiment on patients of both sexes and of different ages; the youngest operated on being 13 years of age, and the oldest 22. The curvatures were all of the second and third degree, with twisting of the spinal column and proportional gibbosity. In some patients a single section of the retracted muscles sufficed to produce a cure; in others two or three sections were required. In all, however, immediately after the operation, a marked improvement in the appearance of the spinal column was produced. In one young man of 21 years of age, who had undergone eighteen months of mechanical treatment for the cure of the curvature of the spinal column, an immediate restoration to the normal straightness was effected by division of the *longissimus dorsi* and corresponding spinal muscles. In others the cure was completed with the assistance of mechanical aid. In none of the twelve operations, which I have performed has there followed the slightest accident; there has been no hemorrhage, no pain, no fever; and in all, with the exception of one case, immediate reunion of the wounds took place without suppuration."

*Obstetrics. New Test for the Detection of Pregnancy.*<sup>2</sup> (L'Expérience, July 25, 1839.)—M. Nauche found that the urine of pregnant women contains a particular substance, which, when the urine is allowed to stand, separates and forms a pellicle on the surface. M. Eguiser, from an extensive series of observations, has confirmed this fact, and found that the *kisteine*, as this particular substance has been called, is constantly formed on the surface of the urine of women in a state of pregnancy.

The urine must be allowed to stand from two to six days, when minute opaque bodies are observed to rise from the bottom to the surface of the fluid, where they gradually agglomerate and form a continuous layer over the surface. This layer is so consistent that it may be almost lifted off by raising it by one of its edges. This is the *kisteine*. It is whitish, opalescent, slightly granular, and can be compared to nothing better than the fatty sub-

<sup>1</sup> Edinb. Med. Journ. Oct. 1839, p. 581.

<sup>2</sup> Ibid. p. 586.

stance which swims on the surface of soups, after they have been allowed to cool. When examined by the microscope it has the aspect of a gelatinous mass without determinate form; sometimes cubical shaped crystals are discovered on it, but this appearance is only observed when it has stood for a long time, and are to be regarded as foreign to it. The kisteine remains on the surface for several days; the urine then becomes turbid, and small opaque masses become detached from the kisteine, and fall to the bottom of the fluid; and the pellicle soon becomes destroyed.

The essential character of the urine of pregnancy, then, is the presence of kisteine; and the characters of the pellicle are so peculiar that it is impossible to mistake it for any thing else. A pellicle sometimes forms on the surface of the urine of patients labouring under phthisis, abscess, or catarrh of the bladder, but may easily be distinguished by this circumstance, that it does not form in such a short time as the kisteine, and that, in place of disappearing, as this last, in a few days, it increases in thickness, and at last is converted into a mass of mouldiness. There exists, likewise, a very marked difference between its mucous aspect and that of kisteine—a difference which it is difficult to describe, but which is easily recognised.

*Kisteine* appears to exist in the urine from the first month of pregnancy till delivery. M. Rousseau has even recognised it in the urine of a few gravid animals.

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*University of Virginia.* Dr. Howard.—Dr. Howard—formerly Professor of Obstetrics in the University of Maryland—has been appointed to the Chair of Medicine in the University of Virginia, vacated by the resignation of Dr. Griffith.

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#### BOOKS RECEIVED.

*From Professor T. R. Beck (the author).—*Tables of the residence &c. of Medical Students in the different Medical Colleges, for a series of years.

*From Professor Gibson (the author).—*Sketches of prominent Surgeons of London and Paris, introductory to a course of Surgical lectures, by William Gibson, M. D., Professor of Surgery in the University of Pennsylvania, Senior Surgeon and Clinical Lecturer to the Philadelphia Hospital, &c. &c. delivered November, 1839, 8vo. pp. 17. Philad., 1839.

*From Professor T. D. Mitchell (the author).—*The Pains and Pleasures of a Medical Life: being an introductory to a course of Lectures on Materia Medica and Therapeutics. Session-1839-40. 8vo. pp. 24, Lexington, 1839.

*From the Committee of Publication.—*A Lecture introductory to the course of Surgery, in the Jefferson Medical College, of Philadelphia, for the Session of 1839-40. By Joseph Pancoast, M. D., Professor of the Institutes and Practice of Surgery, &c. &c. 8vo. pp. 16. Philad., 1839.

*From the same.—*Introductory lecture to the course of Institutes of Medicine and Materia Medica in Jefferson Medical College, of Philadelphia, for the Session of 1839-40. By Professor Dunglison. 8vo. pp. 20. Philad., 1839.

A report on the history and causes of the Strangers' or Yellow Fever of Charleston; read before the Board of Health. By Thomas Y. Simons, M. D., Chairman of the Board. 8vo. pp. 24. Charleston, 1839.